

# Panama Tall Aguadulce (PNT01)

Bourdeix R, Konan JL, Lebrun P

## Conservation

Panama Tall Aguadulce (PNT01) palms are found in Panama but until 2002 there was no coconut germplasm conservation centre in the country. The two populations from Aguadulce and Monagre were introduced into Côte d'Ivoire in 1978. According to the 2002 Coconut Genetic Resources Database, the population from Aguadulce is represented by 3 accessions with 232 living palms in the field.

## History

Panama Tall Aguadulce was collected from the town of Aguadulce, in the west of the country, near the Pacific Ocean. Throughout tropical America, coconut varieties are different in the east, on the Atlantic Ocean side, and in the west along the Pacific Ocean. In the east, the so-called 'Tres Picos' Talls, literally meaning 'three points' are found. These Talls produce elongated fruits with a triangular cross-section, and contain a high percentage of husk. They resemble the coconut palms of Africa and India. However, on the Pacific side, the coconut palms produce large round fruits with quite a thin husk. It has been possible to reconstruct their history with the help of molecular biology and botany, and also of archaeological discoveries and the accounts of Spanish discoverers. The coconut palms from Panama form a genetic group with little diversification, which existed before the Spanish arrived. These pre-Columbian coconut palms descended from a very small number of palms and have far more traits in common with those from Southeast Asia than with those from Polynesia. Although the coconut palm lends itself well to dissemination by ocean currents, any possibility that seednuts could have survived a journey going virtually half way around the world has been ruled out. These 'Pacific' coconut palms were therefore, possibly brought by seafarers, although such a journey made 2500 years ago, may seem incredible. This is still a subject of bitter controversy.

## Identification

The stem, which is massive and straight, begins with a marked bole. Roots sometimes emerge from the stem above the ground, and up to around one meter in height. Although the fronds are long, they bear quite a small number of leaflets. The fruits are round to ovoid, sometimes broader than they are long, and weigh an average of 1543g in Côte d'Ivoire. The inner nut is almost round and sometimes broader than long, and weighs 1056g on average. The kernel weighs an average of 482g and gives 263g of oil-rich copra after drying.

## Yield and production

Production starts late. Flowering begins on average 6.5 years after planting. Production remains mediocre in Côte d'Ivoire with about 11 bunches and 30 fruits per palm per year on adult palms. However, production probably continues to increase up to 20 or 25 years. PNT01 produces erratically. Rapid emission of several inflorescences is followed by long rest periods without flowering.

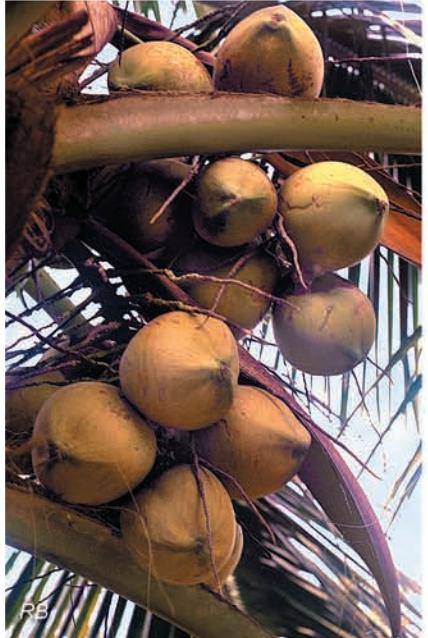
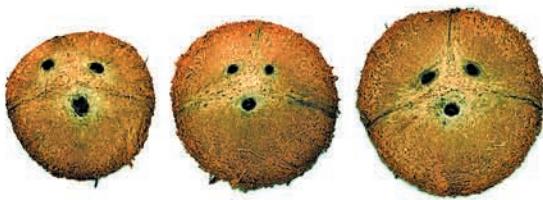
## Other information

In Côte d'Ivoire, the Panama Tall Aguadulce has been crossed with three other varieties. These new crosses are inferior to the reference hybrids, notably for immature production levels. However, they do produce larger nuts, which may be an advantage since for the same tonnage, nut processing costs may possibly be reduced.

## References

- Harries HC. 1971. Coconut varieties in America. *Oléagineux* 26:235-242.  
Ward RG, Brookfield M. 1992. The dispersal of the coconut: Did it float or was it carried to Panama? *Journal of Biogeography* 19:467-480.

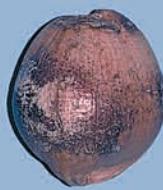
## Panama Tall Aguadulce (PNT01)



Big

Medium

Small



20 cm



# Panama Tall Monagre (PNT02)

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## Conservation

Up to 2002, there was no coconut germplasm conservation centre in Panama in which the Panama Tall (PNT02) was planted. The Panama Tall has been conserved in Jamaica since 1954 and in India since 1956. The two Panama Tall populations from Aguadulce and Monagre were introduced into Côte d'Ivoire in 1978. According to the 2002 Coconut Genetic Resources Database, the population from Monagre is represented by 3 accessions with 271 living palms in the field.

## History

The coastal resort of Monagre lies on the Pacific coast. In 1977, coconut seednuts and pollen were collected there, and then sent to Côte d'Ivoire. From Côte d'Ivoire, they were sent to Tanzania (1988) and Ghana (1994), but many palms in these two countries were destroyed by the lethal yellowing disease.

## Identification

Two types of the Panama Tall are conserved in Côte d'Ivoire: Aguadulce and Monagre. The vertical growth of the Aguadulce origin is slightly more rapid, but morphological differences remain only slight. However, molecular biology analyses have revealed that the Monagre origin is more closely related to the famous Panama Tall coconut palms from the Agualta Vale plantation in Jamaica (shown in the oval photograph). The variety known as the 'Jamaica San Blas' in India is also a Panama Tall. The fruits are almost round, both in longitudinal and cross section, and weigh 1483g on average. They contain a nut that is also round, sometimes slightly conical at the end with the germination 'eyes', and weighs 1020g. The kernel weighs 473g and gives only 263g of oil-rich copra. The husk of immature fruits sometimes display the intense pink colouring also found in the Pilipog Green Dwarf from the Philippines.

## Yield and production

The palms start bearing late. On average, flowering begins 76 months after planting. Production remains mediocre in Côte d'Ivoire at 12 bunches and 31 fruits per palm per year on adult palms (9-12 year average).

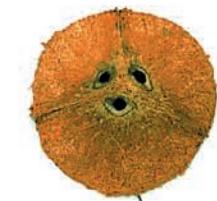
## Other information

Panama Talls had their moment of glory in the 1980s, when studies conducted in Jamaica concluded that, along with their hybrids, they were among the varieties with greatest tolerance to lethal yellowing. Despite initial tolerance to the disease, the hybrids started dying by thousands in the mid-1990s. The experts are still not sure of the reasons for this new catastrophe: was the tolerance observed in field trials really of genetic origin? Was the planting material supplied to farmers really true-to-type? Was a new pathogen strain (a phytoplasma) accidentally introduced? Or did the pathogen strain mutate? What is certain is that it has become particularly adventurous to talk about a lethal yellowing 'resistant' variety. Panama Talls have also proven to be susceptible to other types of lethal yellowing, such as that in Tanzania.

## References

- Eden Green SJ. 1997. History, world distribution and present status of lethal yellowing-like diseases of palms. In: Eden Green SJ, Ofori F, editors. Proceedings of an international workshop on lethal yellowing-like diseases of coconut. Elmina, Ghana, November 1995. Natural Resources Institute, Chatham, UK. pp. 9–25.
- Baudouin L., Lebrun P., Berger A., Myrie W., Been B., Dollet M. 2008. The Panama Tall and the Maypan hybrid coconut in Jamaica: Did genetic contamination cause a loss of resistance to Lethal Yellowing? Euphytica 161:353-360.

## Panama Tall Monagre (PNT02)



Big



Medium



Small



20 cm

RB

